CMGC Design Phase - State Report

For

I-80; State St to 1300 E

S-80-3(152)121

S-80-3(153)121

SP-80-3(68)121

PIN No. 4303, 6838, 6839

Prepared by

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For

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Of

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Purpose

The purpose of the State CMGC Report is to summarize the project in terms of which innovations were used, and what were their anticipated impacts on project attributes of: cost, schedule, quality, design, constructability, and benefits to the public. Information about the contractor's role in risk reduction, environmental stewardship, and an analysis of the performance of this project are addressed.

Project Overview

The Request for Proposals (RFP) identified the I-80; State St to 1300 E project as:

> I-80 from State Street to 1300 East is a major arterial along the Wasatch Front. The existing corridor consists of 15 bridges, which includes three interchanges. The existing corridor is in poor condition with deteriorating bridges, and inadequate ramp configurations at the interchanges. UDOT has decided to replace the existing bridges, add an additional general purpose lane, make ramp improvements, add an auxiliary lane, overlay the pavement, add MSE walls, and add post and panel noise/retaining walls.

Originally 3 years was estimated to complete the project using traditional methods of construction. UDOT Administration set the project schedule to 2 years due to political pressures. Furthermore, UDOT was interested in implementing off-site bridge construction for all of the bridges in the project. At the time of the award of the project, remote bridge construction and mobilization into place had not been achieved in Utah. It was UDOT's intent to use this project to implement and learn this new technique. With a heighted schedule, and the increased risks of moving bridges into place, it was determined that CMGC would be the delivery method due to its abilities to reduce schedule, control risks, and allow new innovations. As a result, the design team was able to develop plans for one of the most complex projects in UDOT history.

Table 1 – Project Overview Information Summary

Project Type:	Large Project
Project Number:	SP-80-3(68)121 S-80-3(152)121 S-80-3(153)121
PIN:	4303, 6838, 6839
Funding Source:	State
Commission Approved Funding (ePM, screen 495):	$ 135,476,224.00

Design Costs

Table 2 – Design Fee Breakdown

Designer's Fee (Horrocks)	$6,600,000.00
CMGC Design Fee	$249,786.00
ICE Preparer's Fee	$65,000.00
Total Design Costs	$6,914,786.00
CMGC fee as a Percent of Total:	3.6%

Bid Prices

Table 3 shows the bid prices for all three phases of the project. At each bid opening UDOT reviews the bids and requires the contractor to justify or correct any anomalies in the proposed bid. Anomalies are found by comparing the proposed bid with the Engineer's Estimate and the Independent Cost Estimate. The difference of each item is discussed and each submitter is allowed the opportunity to defend or change their numbers. After this analysis some bids require a second opening with the updated changes. Table 4 shows an example of the changes between the initial and final bid openings for the second phase of the project. The second phase represents more than 90% of the total project price.

Table 3 – Final Bid Prices for I-80; State St to 1300 E

Project Number	Engineer's Estimate (EE)	Independent Cost Estimate (ICE)	Final Bid	% Difference of EE	% Difference of ICE
SP-80-3(68)121	$5,706,331.90	$5,215,958.07	$6,050,431.66	6.03%	16.00%
S-80-3(152)121	$87,127,133.42	$88,044,099.74	$92,830,570.48	6.55%	5.44%
S-80-3(153)121	$4,469,904.40	$3,843,260.72	$3,976,395.03	-11.04%	3.46%
Total	**$97,303,369.72**	**$97,103,318.53**	**$102,857,397.17**	5.71%	5.93%

Table 4 – Initial and Final Bid Prices (Only Represents S-80-3(152)121, Phase II)

	Initial Bid	Final Bid
Engineers Estimate (EE)	$ 86,816,187.42	$ 87,127,133.42
Independent Cost Estimate (ICE)	$ 90,663,340.40	$ 88,044,099.74
Contractor's Bid	$ 99,809,398.76	$ 92,830,570.48
Percent Difference of EE	14.56%	6.55%
Percent Difference of ICE	10.09%	5.44%

Applicability of the CMGC Process

The I-80; State St to 1300 E project is to date UDOT's largest bridge replacement project. The project featured offsite bridge construction and bridge mobilization by Self Propelled Modular Transport (SPMT) methods. Designed concurrently with the I-215 4500 South Bridge Replacement project, the I-80; State St to 1300 E project expanded on this innovative method of bridge replacement, thus minimizing the traffic impacts. This project established bridge mobilization methods that are being utilized throughout the state.

UDOT chose the CMGC delivery method to accomplish the I80 reconstruction project because the schedule was too short, they were unfamiliar with the technology, and financial risks were too high. Due to the reduced project time of two years, there was insufficient time to perform a traditional design and then follow into the construction. The new technology of bridge mobilization had not been performed in Utah prior to the beginning of the project. Though the I-215 project was the first to use SPMT to move the bridge structure, they were still in the design stage when the I-80 project began. Because of the unknowns involved with bridge mobilization, only a team that incorporated UDOT, a designer, and contractor would have the combined knowledge to achieve this innovation. Finally the high risk involved with bridge

mobilization would have pushed the project beyond its current budget. Contractor contingency monies would have escalated if risk was placed entirely on the contractor. Only by working together could UDOT, the designer and the contractor accomplish this project on time and within budget. These goals could only be achieved through the CMGC delivery method.

After the completion of design, the project mangers of UDOT, the contractor, and the designer were interviewed to determine the effectiveness of the CMGC process. Persons interviewed included John Montoya from UDOT, Wayne Bowden from Ralph L. Wadsworth Construction, and Brian Atkinson from Horrocks (see notes in Appendix A)

Innovative Process

The contractor enhanced the design through the use of technical innovations that introduced new methodologies or alternative solutions to design issues. Technical innovations included the use of materials, equipment and methodologies that are not commonly used in roadway construction. The contractor also provided alternative solutions to the standard design, which saved money and reduced the schedule. Once an innovation was proposed by the contractor, both the owner and the designer determined if the innovation meets the project goals and leads to a savings in cost, time or quality of the project. The following list shows some innovations identified by the design team and attributed to the contractor's input:

- Accelerated Bridge Construction (ABC) techniques
- Attention of early surcharge requirement in a primary phase
- Realignment of bridges to avoid conflicts with the overhead power lines
- Avoid the relocation of Qwest utility hub
- Lanes sharing for peak hours to reduce user costs
- Adjust construction means and methods to minimize relocation of canal sections
- Utilization of one location for bridge construction ("bridge farm") to avoid right of way conflicts.
- Alternative betterments to utilities rather than replacement
- Value engineering of landscape and finishing packages

Originally UDOT directed the team to use SPMT equipment to move all fifteen bridges into place. Though this provides bridges ready for traffic quicker than traditional methods, there is a cost increase in mobilizing bridges. By analyzing the critical path of construction, the team proposed that only seven of the fifteen bridges needed to be moved to maintain the accelerated schedule. The remaining bridges could be constructed in place. This decision allowed the team to achieve the accelerated schedule and minimize the costs of transporting bridge structures into place.

Benefit to the Public

The interviewing process revealed that the contractor's involvement during design helped produced innovations that benefited the public (See Appendix A). The most obvious benefits of the CMGC process included:

- MOT plan offering the traveling public three lanes of traffic open during peak traffic hours as opposed to two.
- Bridges installation in a matter of hours, thus avoiding the need to divert public off of freeway for significant amounts of time while bridges are built in place.
- More effective coordination with utility during design.
- Contractor's involvement in public meetings gave assurance to the local stakeholders. The contractor could speak directly concerning their schedule and methods.
- Contingency costs were minimized because the all members of the team had ownership in the solutions.
- Temporary easements were made more efficient and cost effective. In many cases they were minimized to 15 foot widths.

The I-80 project received national recognition for the implementation of innovation in roadway construction. Local citizens came in the middle of the night to witness the massive undertaking of mobilizing a bridge structure. Met with fascination and pride, the I-80 project was a huge public involvement venture for UDOT overall.

Risk

The team tracked risks informally during their discussions. Risk issues were discussed with UDOT leadership to determine how they wanted to handle different risks. In most cases UDOT accepted ownership of the risks and asked the contractor not to consider the risk in the bid.

Three major risks addressed by the team were: Right of Way acquisition, utility coordination, and bridge mobilization.

Right of Way (ROW) acquisition was a major risk for the offsite construction of the bridges. The team decided that the bridges would be constructed at a centralized location located on original UDOT owned property. Though the cost to move the bridges from this single location would be higher, the guarantee that the property would be available when the project needed it was the deciding factor.

Utility issues became a major impact to the project schedule. Once design began all utility companies involved were invited to coordination meetings to determine the amount of time required for them to clear their utilities out of the project's path. Original responses varied from months to more than a year. With a total project time of two years this was unacceptable. Every utility in the project was impacted by team negotiations and innovative solutions to ensure that the project was not delayed. The innovations offered by the team were not new or unique, but they did provide solutions that addressed the utility companies' concerns and ensured their cooperation. The high risk of utility delay was properly mitigated through the team efforts of CMGC.

Bridge mobilization provided the most iconic risk to the project. The failure of a structure during mobilization not only would delay the project but would most likely result in loss of life. Prior to mobilizing a structure the team met with top UDOT officials to create a checklist of risks and mitigation procedures. This checklist was reviewed prior to each bridge move during the weekly coordination meeting prior to mobilization, and onsite prior to the move. Careful attention to risk made it possible for the successful implementation of new technology. The lessons learned on this project have been successfully utilized by other projects since the completion of the I-80 reconstruction.

Analysis of Performance

The final bid opening for the I-80; State St. to 1300 E projects was 5.93% above the ICE. The project was awarded to Ralph L. Wadsworth Construction Company. Table 6 indicates that major components structures and signing realized significant savings compared to the ICE. Savings in signage was achieved through the contractor's innovative use of existing sign structures wherever it was feasible.

TABLE 6 – Agreed Price vs. Independent Cost Estimate (all three phases)

Project Component	BID	ICE Price	Percent Change*
10 – ROADWAY	$ 64,841,278.93	$ 58,361,974.12	11.10%
20 – STRUCTURES	$ 27,688,647.34	$ 29,448,201.81	-5.98%
30 – LANDSCAPING	$ 1,245,678.80	$ 1,229,793.70	1.29%
40 – SIGNING	$ 900,000.30	$ 994,919.50	-9.54%
60 – LIGHTING	$ 536,000.00	$ 536,000.00	0.00%
70 – ATMS	$ 944,791.80	$ 942,529.40	0.24%
75 - MISC BID	$ 6,701,000.00	$ 5,589,900.00	19.88%
Total	**$ 102,857,397.17**	**$ 97,103,318.53**	**5.93%**

Table 7 compares how the prices indicated in the proposal compared to the awarded bid prices. The proposal pricing section indicated that the project would incur large costs for traffic control. This was due to the following requirement stated in the RFP: "The Department would like to minimize costs to users by allowing three lanes of traffic during peak traffic hours and decrease the amount of time required to construct the project". Once the sequencing and innovations were implemented, the final bid for traffic control was increased from $2.7 million to $7.3 million dollars. Nevertheless, the user costs savings for implementing the traffic control as requested in the RFP is estimated at $293,000 a week savings in user costs. Due to innovations employed in the MOT significant savings will be achieved in reduced user delays.

From the proposals UDOT realized that the project pricing should be about 63% of the state average unit prices. This pricing goal was determined based on the performance pricing shown in the winning proposal. Ralph L. Wadsworth's pricing during selection was lower than all other bidders making the 63% goal very aggressive. The ratio of Cost to Anticipated Cost was 1.04 indicating that the goal was not quit achieved. However, Table 8 shows the extrapolated price for each proposal based on the comparison to state average prices. These estimates indicate that the final bid price was less than the amounts suggested by non winning proposers. Although the 63% goal was not achieved, prices were affordable (See Appendix B).

Figure 1 shows the pricing of each phase of the project compared to state average prices (Silver Standard ratio) and the phase's efforts to achieve the 63% goal (Gold Standard ratio). The Phase I (Early Construction) prices were much higher than previously anticipated. This phase dealt primarily with the surcharging of the bridge abutments to achieve stabilized foundations. The contractor reported that the reason for price escalation was attributed to differing disposal sites and the need to disturb the operation partway through completion. During the selection process the contractor located a quarry/disposal location within a mile of the surcharging site.

However, at bidding the location was not deemed acceptable to store the surcharging soil after settlement had occurred. A new site was located across the valley requiring longer haul distances. Furthermore, the accelerated schedule impacted the surcharging effort. The mobilization of one structure would require the removal of a portion of the surcharge and reinstallation after the move was complete. Issues of site disposal suitability and schedule conflicts attributed to the high costs of phase I.

After considering the contractor's argument, UDOT decided to move forward with the early phase despite the pricing issues. Completion of the surcharge was part of the project's critical path to meet the accelerated schedule. Although the pricing was higher than anticipated, it did not have a large impact on the total costs. Nevertheless, UDOT learned that when CMGC is schedule driven, cost savings are jeopardized (see comments by John Montoya in attached interviews).

Table 7 – Winning Proposal Pricing Comparison with 2007 State Averages

Description	RFP Quantity	Unit	Winning Proposal Unit Price	State Ave. Price 02-7-2007 to 02-6-2008	Anticipated Ratio of Price [2]	Awarded Bid Quantities	Awarded Bid Unit Price [1]
Traffic Control	1	Lump Sum	$2,729,716.69	$113,015.28		1	$7,345,059.12
HMA – ¾ inch	47000	Ton	$75.23	$64.02		37856	$75.91
Portland Cement Concrete Pavement 11 inches thick [4]	202300	Sq Yd	$48.74	55.88		157090	$49.25
Single Stage MSE Retaining Wall	71500	Sq Ft	$48.74	53.83		123229	$30.07
Two Stage MSE Retaining Wall	41000	Sq Ft	$70.77	75.93	0.63	NA	0
Structural Concrete	12810	Cu Yd	$322.00	$1,666.67		13027	$327.80
Move and Place Superstructure (300 East Westbound Bridge)	1	Each	$240,331.95	277599.99		NA	0
Move and Place Superstructure (700 East Westbound Bridge)	1	Each	$343,958.08	377296.02		NA	0

Notes:

1. Unit prices are a weighted average of all three phases.
2. Anticipated Ratio of Price is the Proposal Appendix D elements compared to the State Average Prices (if state averages are NA, assumed all proposal prices to represent the average)
3. Ratio of Price is the Bid items prices compared to the State Average Price (if available). Time period is one year prior to the CMGC award.
4. Actual bid item was for 12 inch thick PCCP.

Table 8 – Proposal Pricing Comparison (extrapolated to Bid Price)

	Projected Pricing Goals From Proposals[2]	Extrapolated Prices
Ralph L. Wadsworth's Suggested Submittal Price	63%	$99,000,000.00
Bid Price		$102,857,397.17
NWP[1] 1 Extrapolated Price	79%	$106,000,000.00
NWP[1] 2 Extrapolated Price	82%	$107,000,000.00
NWP[1] 3 Extrapolated Price	84%	$108,000,000.00

Notes:
1. NWP=Non-winning Proposer
2. Pricing Goals based on State average pricing of proposal bid items compared to state averages at the time of the proposal.

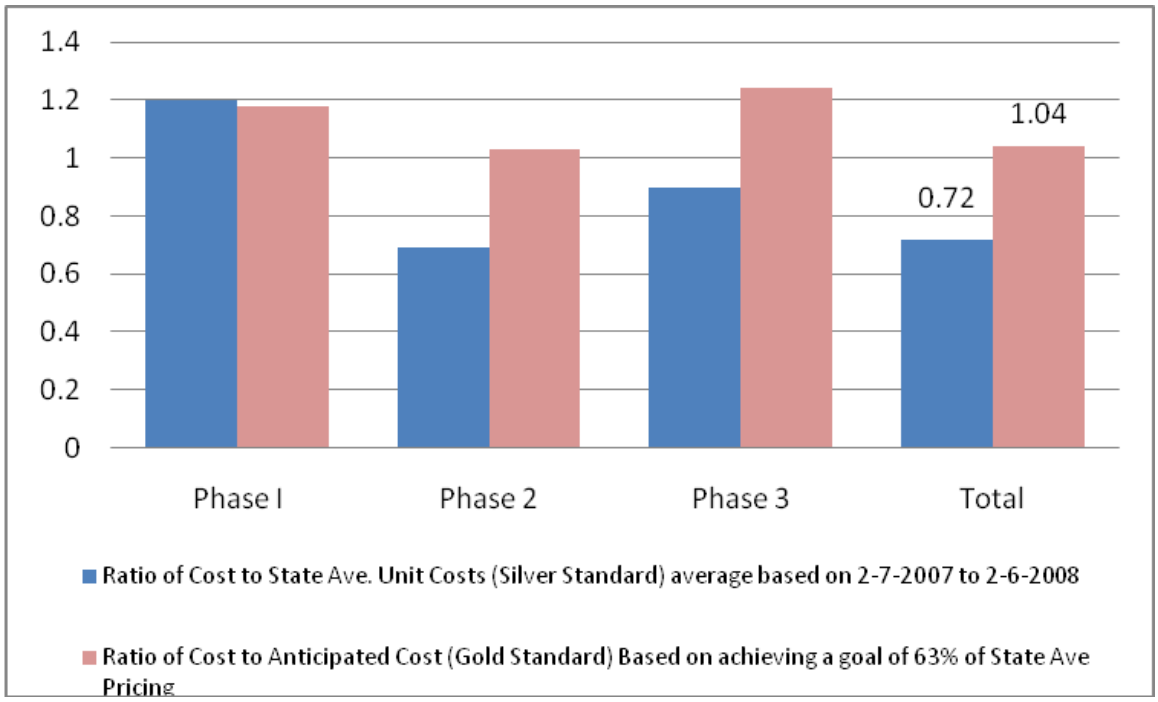

Figure 1 Pricing Performance Ratios for I-80; State St to 1300 East

Lessons Learned

As design came to an end, members of the project team were interviewed to determine how the CMGC process performed on this project. Complete notes from the interviews are attached in Appendix A. The following lessons learned are a summary of these interviews:

- There should be more UDOT staff on the project to watch out for UDOT interests. This project incorporated a consultant Resident Engineer, a Consultant Designer, and the Contractor.
- Cost savings are jeopardized when CMGC projects are schedule driven.
- There was some feuding between the designer and contractor . . . Most difficulties occurred when the schedule became the driving force behind the project.
- There's value in the process [CMGC], but it has its limits. If a project is schedule driven, you lose time for input and collaboration. At the beginning of the project, the collaboration went well, but the collaboration was greatly reduced after December '07 when the phases were combined and the design schedule was accelerated.
- Ensure that the design team has enough time and resources to flush out problems, evaluate various alternatives, and meet their committed design schedule.

Conclusion

The use of a CMGC helped set the stage for one of the most aggressive and exciting UDOT projects to date. Pricing for the project was fair and reasonable despite the high prices in preliminary phases. However, the primary driving force behind the project became the schedule. Innovative solutions to utility coordination and project methodology focused on meeting the schedule and reducing costs. Due to the pressure for faster delivery schedule, overall savings may have been limited. The team felt that the accelerated schedule inhibited CMGC from realizing it full benefits. Nevertheless, CMGC allowed the project to move forward at a pace that could not have been achieved using any other delivery method. "This project couldn't have been done using any other method under the time and budget constraints. . . " (John Montoya, UDOT Project Manger)

Appendix A - Interview Notes

CMGC Interview Questions

UDOT Project Manager- John Montoya
Design Project Manager - Brian Atkinson
Contractor Project Manager – Wayne Bowden

Project Description:	**I-80, State Street to 1300 East**
Project Numbers:	S-80-3(152)121, S-80-3(153)121, SP-80-3(68)121
Pin:	4303, 6838, 6839
Project Phase:	Design
Anticipated construction cost:	**$102,857,397.17 (all three contracts)**
Construction notice to proceed date:	**August 24, 2007 (Preliminary Engineering and Right of Way, Environmental)**
Estimated completion date:	**12-31-2009**

Design

What benefits did you see in design because of contractor participation?	• This project couldn't have been done using any other method under the time and budget constraints, mostly because of the innovations of the bridges (John Montoya). • The design was built around the particular methods of the contractor (John Montoya). • CMGC lowered the contingency requirements compared to design build (John Montoya). • It was also quicker than Design Build because we would have lost close to 3 months in procurement processes with design build methods (John Montoya). • The ABC would have been nearly impossible without contractor participation, particularly in understanding the equipment and processes involved (Brian Atkinson). • The contractor understood early on that the surcharges would be critical path. To work around this, they recommended early widening, which saved an entire construction season (Brian Atkinson). • The contractor assisted with utility relocations, lightweight fill, box culverts, ROW, and various other items. • Contractor met weekly with utility companies to help ensure that utility claims and State agreements were

	addressed during construction.(Wayne Bowden).
Describe the nature and value of contractors' design suggestions?	• Their suggestions included everything from supporting bridges during off-site construction to permanent abutments, utilities, phasing for MOT, and earth work (John Montoya). • The use of temporary easements was made more efficient and cost effective. In many cases, they were reduced from 25' to 15' wide. Also the easement time period was reduced from 2 years to 1 year in most cases. For some properties, the need for easements was eliminated all together (Wayne Bowden). • Bridge moving couldn't have been done without CMGC. Each bridge was unique and required a lot of coordination. It would have been difficult for a designer to put a design package together that addressed the specific issues with each bridge (Wayne Bowden). • Through coordination with Qwest and some innovative designs, we were able to avoid the relocation of a major utility trunk line (Wayne Bowden). • We were able to find ways to make the landscape and aesthetics package more efficient, particularly in regards to tying in to the existing water lines and electricity sources rather than paying for new connection points.(Wayne Bowden). • Bridges were moved 8' to one side or the other to avoid conflicts with overhead power lines during pile driving. Without contractor participation, the need to do this may not have been realized until after design was complete (Wayne Bowden). • Contingency costs were not added into the bid prices because of the contractor's input during design. We felt that since we agreed to the design solutions we needed to back them up at bidding (Wayne Bowden) • Contractor's participation in public meetings and local negotiations added credibility to the negotiations because they could present their solutions and insure that requests by utilities and cities were realistic (Wayne Bowden).
How did you evaluate and decide	• It was a collaborative effort. Recommendations had to pass the following tests: does it work? Does it meet UDOT

which suggestions to use?	standards? And is it cheaper? (John Montoya) • The team implemented the majority of the suggestions that appeared to cut schedule and cost. However, sometimes what appeared to be cheaper turned out not to be, such as the MSE walls (Brian Atkinson). • Method of evaluation included recommendations of contractor at weekly design meetings, team discussion, and final decision was presented (Wayne Bowden)
What Challenges came up during design and did you resolve them?	• Ultimately, all suggestions made by the contractor were evaluated by the team. If the results met the process requirements the suggestion was approved without much delay (John Montoya). • The bridge construction and installation presented numerous challenges- it was a daily, iterative process (John Montoya, Brian Atkinson). • The design team was behind schedule and didn't want to "change paths" in design to incorporate new ideas (Wayne Bowden). • More money could have been saved if more alternatives could have been investigated during design phase but since design schedule was behind, comparison of alternatives were not as extensive as could have been. More design time upfront on the project would have been beneficial (Wayne Bowden)
What is the cost savings anticipated and or produced by contractor's suggestions?	• Cost savings are difficult to quantify on such a large project with the contractor so integrated into the design. Each suggestion was evaluated for cost savings but the team did not maintain a total throughout the project. Generally speaking, it probably cost more than DBB, and less than DB (John Montoya). • Overall, the Contractor input probably saved approximately $5-10 million (Brian Atkinson). • $330k on value engineering the landscaping, $450k on avoiding Qwest utility relocation, and $1.5M on avoiding overhead power relocation by moving the bridges 8' to the side instead (Wayne Bowden)
How did the	• The contractor provided estimates. They are more plugged

contractor communicate cost changes that corresponded with design changes?	into what things cost and less concerned about standards (John Montoya). • We (the designer) would develop quantities for both options to be compared, and the Contractor would develop costs for both, then we compared them (Brian Atkinson). • These were addressed in weekly team meetings. Also, at regular intervals, the designer updated quantities, and the contractor would update the pricing, total number of updates was estimated at 6-8 times (Wayne Bowden).
Was there any work besides design that was required of the contractor prior to construction?	• Yes, the job schedule was driven by settlement times; the contractor was brought in early to begin the settlement process (drainage, surcharge etc.) (John Montoya) • The contractor developed the schedule, and the MOT plan from the beginning, which was more efficient than the typical process of having the designer create a draft then turn it over to the Contractor (Brian Atkinson). • We began work early on utility coordination. Also, we attended public meetings, which helped the locals feel more comfortable with some of the issues (Wayne Bowden).

Constructability

How was constructability improved by involvement of the contractor in design?	• Bridges couldn't have been done any other way (John Montoya). • The contractor was a big help on coordinating with local utilities. (John Montoya). • The contractor was heavily involved in constructability for the ABC and walls (Brian Atkinson). • The City wanted to relocate the canal along Highland Drive 3 times throughout construction, but with contractor involvement, it only had to be relocated once (Wayne Bowden).
What constructability issues identified by the contractor were included in design?	• Most ideas that benefitted both the contractor and the Department were implemented. Ideas that only benefited the contractor were not implemented (John Montoya).

Innovations

What innovations were used to reduce cost?	• The contractor recommended white-topping existing pavement where possible. Also, the recommendation for the "bridge farm" resulted in savings from economies of scale (Brian Atkinson). • Innovations with utilities and ROW saved cost (Wayne Bowden). (*see design section*)
What innovations were used to reduce schedule?	• Building the bridges offsite and moving them into place, resulted in bridge replacement that was accomplished in days. Every aspect of construction of bridge decks off site and installing was an innovative process. Overall a savings of at least one year as opposed to a standard design-bid-build project. (John Montoya). • The contractor identified immediately that the surcharge times were going to be critical path. By performing temporary widening and using the moveable barrier, a full construction season was saved. They got under contract in July, and began construction on the temporary widening in August, which would not have been possible under a typical process (Brian Atkinson). • CMGC provided the buy-in and resources to ensure that this project finished on schedule. There's no way that this project would have met the schedule using design-bid-build (Wayne Bowden).
What innovations were used to improve quality?	• The implementation of the bridge farm resulted in higher quality bridges due to being able to construct numerous bridges at once (Brian Atkinson, Wayne Bowden). • The contractor was able to provide early input which resulted in aesthetic improvements (Wayne Bowden).
What technology innovations were used?	• Moving the bridges with the use of Self Propelled Modular Transporters (SPMT) (John Montoya). • The team was able to develop a process with the bridge moving to transfer the bridge from the SPMTs to rails then to hydraulic jacks, which allowed for transferring the bridges from the bridge farm to their ultimate location (Brian Atkinson, Wayne Bowden).
What innovations were used to reduce	• Moving the bridges into place already constructed, resulted in fewer delays to the public. (John Montoya, Brian

impacts to the public?	Atkinson). • The use of the movable barrier allowed for maintaining three lanes of traffic open in the direction of the predominant traffic flow (Brian Atkinson).

Project Schedule

How much time was saved in design?	• Looking at the overall project, a 3 year project was condensed into 2 years (John Montoya). • Although design was extended by 2-3 months, the savings to the project as a whole will be about 1 year (Brian Atkinson).
How much cost was saved in design?	• Not really sure that there was a significant savings to the design costs. Savings were discussed in design and implemented in construction (Wayne Bowden)

Risk

How did the team identify, evaluate, and track project risk?	• Risk wasn't formally tracked (John Montoya, Wayne Bowden). • A rolling agenda was kept at the weekly meetings. In addition, the Contractor kept a spreadsheet (Brian Atkinson). • There were regular meetings between the contractor, the UDOT PM, and UDOT leadership on risks, and who would take them on. UDOT generally accepted the risks, which likely saved them $1M. Also, UDOT required the contractor to carry a $50M insurance policy (Wayne Bowden).
Which contractor suggestions helped you to reduce risk and control cost?	• The contractor helped with utility coordination, surcharge & settlement times (John Montoya). • Using CMGC increased the planning time for the contractor to think about methods and processes. In DBB, they wouldn't have had as much time to think through their approach to issues (John Montoya). • The use of the bridge farm allowed for reduced ROW risk, by allowing bridges to be built in an area already owned by

	UDOT, which reduced the need to clear ROW for areas adjacent to each bridge replacement location (Brian Atkinson). • Contractor input on bridge moving allowed them to eliminate contingencies because they knew they could build what was designed (Wayne Bowden).

Environmental Stewardship

How did bringing the contractor on early alleviate environmental concerns?	• The contractor had more time to get familiar with environmental commitments (John Montoya). • The contractor assisted with maintaining historic structures (Brian Atkinson).

Benefits to Public

How did the public benefit from the CM/GC process?	• The team was able to provide a project schedule to the public sooner (John Montoya, Brian Atkinson). • The ABC process reduced impacts to traffic (Brian Atkinson).

Lessons Learned

What did you learn in the CM/GC process?	• There was some feuding between the designer and contractor. It may have worked better to select the contractor first, and then allow the contractor to input on the selection of the designer (John Montoya). • CMGC did not eliminate change orders. CMGC helped with constructability-related change orders, but on unforeseen conditions, CMGC can't really help. An example is the soft spots in the road base. The best you can hope for is good partnering so the contractor is reasonable in negotiating change orders (John Montoya). • There's value in the process, but it has its limits. If a project is schedule driven, you lose time for input and collaboration. At the beginning of the project, the collaboration went well, but the collaboration was greatly reduced after December '07 when the phases were

	combined and the design schedule was accelerated (Brian Atkinson). • If you want to control costs, don't let the contractor on site unless the early phases truly are discrete (Brian Atkinson). • Ensure that the design team has enough time and resources to flush out problems, evaluate various alternatives, and meet their committed design schedule (Wayne Bowden).
Was there anything you would change during the RFP portion of the project?	• Switching the order to select the contractor first, and let them help choose the designer (John Montoya). • Put less weight on the price. In the end the Contractor prices listed in the RFP won't matter much because items can change quite a bit through design. That said, Wadsworth would have likely been picked anyway, even if price were not an evaluation criteria (Brian Atkinson).
Would you have used different selection criteria?	• Make it clear to the designers that their scope doesn't end at construction. There has been serious resistance to design support (John Montoya).
Would you change the way you selected based on price?	• Yes. The entire cost section was useless. Secured unit prices were honored, however other items were increased making the pricing on other items inaccurate (John Montoya). • Rather than have the Contractors present unit costs, have them only show their markup, and then hold them to it (Brian Atkinson).
What changes would you have made in the way you developed the RFP?	• Good, other than the price component (John Montoya). • I wish that they had more geotechnical data to provide so that the Contractors could understand the job better (Brian Atkinson).
What changes would you make in the selection process?	• The process worked really well (Brian Atkinson).
How would you improve the RFP development?	• It would have been nice to have a standard boilerplate to work off of (Brian Atkinson).

General Notes/Other Items

Did you set a committed advertising date and did you meet your schedule?	• Yes.
Describe negotiation problems and their resolution.	• The bid came in $10 million higher than the ICE. For the most part, the contractor was unwilling to negotiate on price (Brian Atkinson). • Originally, the construction was going to be let out in phases, but then UDOT decided to bid all of the phases at once. The collaboration nearly ceased at that point due to the rush to get the bid package done. UDOT lost some negotiation power because of the rush, but may have gained some leverage by combining the phases (Brian Atkinson). • There was a difference of opinion with UDOT on how to evaluate pricing. It's 'unfair' to compare the bid to the lowest historical prices without accounting for size and complexity of the project. UDOT's pricing methodologies could be improved (Wayne Bowden). • If this project would have been contracted as a Design Build method, the pricing would have been higher because of the need for a contractor to figure in his contingencies for the unknowns and risks (Wayne Bowden).
How would you rate the CMGC process prior to the beginning of the project?	• With this project the contractor wanted to drive every aspect of the design. They dominated the design process. This was very different than previous projects that I had used CMGC with. CMGC is a tool that is good for some projects. It is not cost effective when a schedule is tightly held (John Montoya). • At the start: 4 out of 10. At the end: 9 out of 10 (Brian Atkinson). • 9 out of 10. At the end of the day, the project has been a success, and is still going to meet schedule (Wayne Bowden).

Appendix B – Bid Items List; Pricing Analysis

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
										0.627	
Phase	seq_num	item_num		qty	unit	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	012850010	Mobilization	1	Lump	$1,021,181.27	$1,021,181.27		$0.00	$1,021,181.27	$1,021,181.27
1	2	013150010	Public Information Services	1	Lump	$7,747.87	$7,747.87	$8,630.02	$8,630.02	$5,411.02	$5,411.02
1	3	01554000P	Traffic Control Origninal RFP Bid	1	Lump	$2,729,716.69	$2,729,716.69		$0.00	$2,729,716.69	$2,729,716.69
1	4	01554001P	Traffic Control	1	Lump	$331,342.43	$331,342.43	$113,015.26	$113,015.26	$70,860.57	$70,860.57
1	5	01559002*	Moveable Barrier Operator	1	Lump	$45,181.20	$45,181.20		$0.00	$45,181.20	$45,181.20
1	6	015710022	Check Dam (Stone)	61	Each	$403.06	$24,586.66	$232.52	$14,183.72	$145.79	$8,893.19
1	7	015710030	Silt Fence	9608	ft	$4.68	$44,965.44	$3.16	$30,361.28	$1.98	$19,036.52
1	8	015710075	Drop-Inlet Barrier (Fiber Roll)	42	ft	$15.09	$633.78	$18.61	$781.62	$11.67	$490.08
1	9	015710155	Environmental Control Supervisor	1	Lump	$9,894.07	$9,894.07	$22,851.01	$22,851.01	$14,327.58	$14,327.58
1	10	015720020	Dust Control and Watering	831	1000 gal	$46.13	$38,334.03	$8.42	$6,997.02	$5.28	$4,387.13
1	11	01721000*	Preconstruction Survey	1	Lump	$105,535.50	$105,535.50		$0.00	$105,535.50	$105,535.50
1	12	017210010	Survey	1	Lump	$91,741.25	$91,741.25	$51,069.44	$51,069.44	$32,020.54	$32,020.54
1	13	018920010	Reconstruct Catch Basin	23	Each	$1,343.56	$30,901.88	$1,676.86	$38,567.78	$1,051.39	$24,182.00
1	14	020560020	Granular Borrow	16244	Ton	$16.09	$261,365.96	$16.27	$264,289.88	$10.20	$165,709.75
1	15	22210025	Remove Manhole	1	Each	$1,679.44	$1,679.44	$1,032.62	$1,032.62	$647.45	$647.45
1	16	022210030	Remove Catch Basin	9	Each	$1,679.44	$15,114.96	$635.07	$5,715.63	$398.19	$3,583.70
1	17	02221006*	Remove Precast Concrete Barrier	31970	ft	$5.11	$163,366.70		$0.00	$5.11	$163,366.70
1	18	02221007*	Remove Impact Attenuator	6	Each	$1,279.04	$7,674.24		$0.00	$1,279.04	$7,674.24
1	19	022210075	Remove Guardrail	310	ft	$5.72	$1,773.20	$2.59	$802.90	$1.62	$503.42
1	20	022210095	Remove Pipe Culvert	50	ft	$67.18	$3,359.00	$19.06	$953.00	$11.95	$597.53
1	21	02221011*	Remove Concrete Lined Ditch	1078	sq yd	$14.78	$15,932.84		$0.00	$14.78	$15,932.84
1	22	022210165	Remove Asphalt Pavement	17707	sq yd	$3.67	$64,984.69	$5.76	$101,992.32	$3.61	$63,949.18
1	23	022310010	Clearing and Grubbing(Est. Lump Qty: 8 Acre)	8	acre	$5,648.56	$45,188.45	$27,551.25	$220,410.00	$17,274.63	$138,197.07
1	24	023160020	Roadway Excavation (Plan Quantity)	15688	cu yd	$13.94	$218,690.72	$8.54	$133,975.52	$5.35	$84,002.65
1	25	027210010	Untreated Base Course	9182	Ton	$23.40	$214,858.80	$22.03	$202,279.46	$13.81	$126,829.22
1	26	027410060	HMA - 3/4 inch	6392	Ton	$86.42	$552,396.64	$64.02	$409,215.84	$40.14	$256,578.33
1	27	028910270	Remove Sign Less Than 20 Square Feet	17	Each	$134.35	$2,283.95	$87.29	$1,483.93	$54.73	$930.42
2	1	012850010	Mobilization	1	Lump	$10,440,133.34	$10,440,133.34		$0.00	$10,440,133.34	$10,440,133.34
2	2	013150010	Public Information Services	1	Lump	$50,000.00	$50,000.00	$8,630.02	$8,630.02	$5,411.02	$5,411.02
2	3	015540005	Traffic Control	1	Lump	$4,284,000.00	$4,284,000.00	$113,015.26	$113,015.26	$70,860.57	$70,860.57

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	4	01554000P	Police Flagging	1	Lump	$63,600.00	$63,600.00		$0.00	$63,600.00	$63,600.00
2	5	015710022	Check Dam (Stone)	4	Each	$182.00	$728.00	$232.52	$930.08	$145.79	$583.16
2	6	015710030	Silt Fence	18710	ft	$4.65	$87,001.50	$3.16	$59,123.60	$1.98	$37,070.50
2	7	015710075	Drop-Inlet Barrier (Fiber Roll)	10883	ft	$7.36	$80,098.88	$18.61	$202,532.63	$11.67	$126,987.96
2	8	015710110	Pipe-Inlet Barrier (Stone)	3	cu yd	$159.00	$477.00	$158.43	$475.29	$99.34	$298.01
2	9	015710155	Environmental Control Supervisor	1	Lump	$42,800.00	$42,800.00	$22,851.01	$22,851.01	$14,327.58	$14,327.58
2	10	015720020	Dust Control and Watering	10444	1000 gal	$36.10	$377,028.40	$8.42	$87,938.48	$5.28	$55,137.43
2	11	017210010	Survey	1	Lump	$904,000.00	$904,000.00	$51,069.44	$51,069.44	$32,020.54	$32,020.54
2	12	018920010	Reconstruct Catch Basin	26	Each	$1,960.00	$50,960.00	$1,676.86	$43,598.36	$1,051.39	$27,336.17
2	13	018920040	Reconstruct Valve Box	16	Each	$663.50	$10,616.00	$721.03	$11,536.48	$452.09	$7,233.37
2	14	018920050	Reconstruct Manhole	19	Each	$2,080.00	$39,520.00	$1,060.22	$20,144.18	$664.76	$12,630.40
2	15	020560010	Borrow	13682	Ton	$9.28	$126,968.96	$15.47	$211,660.54	$9.70	$132,711.16
2	16	020560020	Granular Borrow	91542	Ton	$16.40	$1,501,288.80	$16.27	$1,489,388.34	$10.20	$933,846.49
2	17	02056002P	Soft Spot Repair	10000	cu yd	$52.20	$522,000.00		$0.00	$52.20	$522,000.00
2	18	20560070	Embankment for Bridge	57479	Ton	$14.70	$844,941.30		$0.00	$14.70	$844,941.30
2	19	020750010	Geotextiles - Separation	200	sq yd	$1.54	$308.00	$2.00	$400.00	$1.25	$250.80
2	20	020820020	Relocate Water Meter	1	Each	$2,030.00	$2,030.00	$1,519.99	$1,519.99	$953.03	$953.03
2	21	02083001*	Relocate Fire Hydrant	8	Each	$4,160.00	$33,280.00		$0.00	$4,160.00	$33,280.00
2	22	02221001D	Remove Building, Basement, and Foundation - Parcel #17	1	Parcel	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	23	02221001P	Remove Precast Concrete Barrier	18835	ft	$5.39	$101,520.65		$0.00	$5.39	$101,520.65
2	24	022210025	Remove Manhole	10	Each	$652.50	$6,525.00	$1,032.62	$10,326.20	$647.45	$6,474.53
2	25	02221002D	Remove Building, Basement, and Foundation - Parcel #30	1	Parcel	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	26	022210030	Remove Catch Basin	76	Each	$652.50	$49,590.00	$635.07	$48,265.32	$398.19	$30,262.36
2	27	02221003D	Remove Building, Basement, and Foundation - Parcel #36	1	Parcel	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	28	02221003P	Asbestos Removal Parcel #36	1	Lump	$27,800.00	$27,800.00		$0.00	$27,800.00	$27,800.00
2	29	022210040	Remove Cleanout Box	1	Each	$652.50	$652.50	$683.94	$683.94	$428.83	$428.83
2	30	02221004D	Remove Building, Basement, and Foundation - Parcel #42	1	Parcel	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	31	02221005*	Remove Tree	1	Lump	$44,400.00	$44,400.00		$0.00	$44,400.00	$44,400.00
2	32	02221005D	Remove Building, Basement, and Foundation - Parcel #43	1	Parcel	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	33	02221006D	Remove Building, Basement, and Foundation - Parcel #44	1	Parcel	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	34	02221007D	Remove Building, Basement, and Foundation - Parcel #14	1	Parcel	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	35	02221008D	Remove Building, Basement, and Foundation - Parcel #39	1	Parcel	$7,240.00	$7,240.00		$0.00	$7,240.00	$7,240.00

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	36	02221008P	Asbestos Removal Parcel #39	1	Lump	$6,520.00	$6,520.00		$0.00	$6,520.00	$6,520.00
2	37	022210090	Remove Utility Pole	49	Each	$476.50	$23,348.50	$1,333.33	$65,333.17	$836.00	$40,963.90
2	38	022210095	Remove Pipe Culvert	6315	ft	$26.10	$164,821.50	$19.06	$120,363.90	$11.95	$75,468.17
2	39	02221009D	Remove Building, Basement, and Foundation - Parcel #41	1	Parcel	$9,070.00	$9,070.00		$0.00	$9,070.00	$9,070.00
2	40	02221009P	Remove Signal Pole	14	Each	$1,030.00	$14,420.00		$0.00	$1,030.00	$14,420.00
2	41	02221010D	Remove Building, Basement, and Foundation - Parcel #45	1	Parcel	$10,500.00	$10,500.00		$0.00	$10,500.00	$10,500.00
2	42	02221010P	Remove Vault	4	Each	$2,610.00	$10,440.00		$0.00	$2,610.00	$10,440.00
2	43	022210110	Remove Concrete Sidewalk	3787	sq yd	$4.11	$15,564.57	$10.59	$40,104.33	$6.64	$25,145.41
2	44	022210115	Remove Concrete Driveway	1056	sq yd	$5.87	$6,198.72	$12.46	$13,157.76	$7.81	$8,249.92
2	45	02221011D	Remove Building, Basement, and Foundation - Parcel #61	1	Parcel	$7,530.00	$7,530.00		$0.00	$7,530.00	$7,530.00
2	46	022210125	Remove Concrete Curb and Gutter	11171	ft	$3.92	$43,790.32	$5.33	$59,541.43	$3.34	$37,332.48
2	47	022210127	Remove Concrete Slope Protection	3723	sq yd	$5.87	$21,854.01		$0.00	$5.87	$21,854.01
2	48	02221012D	Remove Building, Basement, and Foundation - Parcel #62	1	Parcel	$6,470.00	$6,470.00		$0.00	$6,470.00	$6,470.00
2	49	022210130	Remove Gutter	5924	ft	$3.92	$23,222.08	$14.45	$85,601.80	$9.06	$53,672.33
2	50	02221013D	Remove Building, Basement, and Foundation - Parcel #60	1	Parcel	$6,300.00	$6,300.00		$0.00	$6,300.00	$6,300.00
2	51	022210140	Remove Raised Island	2846	sq yd	$11.80	$33,582.80	$11.11	$31,619.06	$6.97	$19,825.15
2	52	022210150	Remove Concrete Pavement	37181	sq yd	$11.90	$442,453.90	$20.57	$764,813.17	$12.90	$479,537.86
2	53	022210165	Remove Asphalt Pavement	33058	sq yd	$4.49	$148,430.42	$5.76	$190,414.08	$3.61	$119,389.63
2	54	02221017P	Remove Retaining Wall	143	ft	$217.00	$31,031.00		$0.00	$217.00	$31,031.00
2	55	02221018P	Remove Bridge Foundation	2	Each	$18,500.00	$37,000.00		$0.00	$18,500.00	$37,000.00
2	56	02221019P	Remove Concrete Lined Ditch	230	sq yd	$8.81	$2,026.30		$0.00	$8.81	$2,026.30
2	57	02221021P	Remove Crash Cushion	5	Each	$1,330.00	$6,650.00		$0.00	$1,330.00	$6,650.00
2	58	02223000*	Stabilize and Abandon Pipe Culvert	588	ft	$32.60	$19,168.80		$0.00	$32.60	$19,168.80
2	59	022310020	Clearing and Grubbing (Plan Quantity)	20	Acre	$8,450.00	$169,000.00	$27,551.25	$551,025.00	$17,274.63	$345,492.68
2	60	023160020	Roadway Excavation (Plan Quantity)	89457	cu yd	$11.10	$992,972.70	$8.54	$763,962.78	$5.35	$479,004.66
2	61	02331001*	Lightweight Aggregate Borrow	28085	Ton	$50.20	$1,409,867.00		$0.00	$50.20	$1,409,867.00
2	62	23730010	Loose Riprap	70	cu yd	$58.70	$4,109.00	$63.09	$4,416.30	$39.56	$2,769.02
2	63	02411001*	Surcharge	188031	Ton	$8.10	$1,523,051.10		$0.00	$8.10	$1,523,051.10
2	64	02411002*	Remove Surcharge	210640	cu yd	$7.94	$1,672,481.60		$0.00	$7.94	$1,672,481.60
2	65	02411003*	Place Stockpiled Surcharge	103510	cu yd	$7.94	$821,869.40		$0.00	$7.94	$821,869.40
2	66	02421001*	8" PVC SDR 35	388	ft	$143.00	$55,484.00		$0.00	$143.00	$55,484.00
2	67	02431002*	Restoration of Service Laterals	18	Each	$1,300.00	$23,400.00		$0.00	$1,300.00	$23,400.00

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	68	02511001*	8-inch DIP Class 350 Pipe	431	ft	$100.00	$43,100.00		$0.00	$100.00	$43,100.00
2	69	02511002*	8-inch MJ x FLG Gate Valve	1	Each	$1,650.00	$1,650.00		$0.00	$1,650.00	$1,650.00
2	70	02511003*	Reconnect Service Laterals	6	Each	$2,080.00	$12,480.00		$0.00	$2,080.00	$12,480.00
2	71	02511004*	Remove Tee & Add Pipe Sleeve	1	Lump	$1,770.00	$1,770.00		$0.00	$1,770.00	$1,770.00
2	72	02533001*	Inclinometer	23	Each	$4,450.00	$102,350.00		$0.00	$4,450.00	$102,350.00
2	73	02533002*	Vibrating Wire Piezometer	23	Each	$2,570.00	$59,110.00		$0.00	$2,570.00	$59,110.00
2	74	02533004*	Vibrating Wire Settlement System	33	Each	$1,870.00	$61,710.00		$0.00	$1,870.00	$61,710.00
2	75	026101046	18 Inch, Class B, Corrugated	468	ft	$67.10	$31,402.80		$0.00	$67.10	$31,402.80
2	76	02610136P	12 Inch Irrigation/Storm Drain, Class B, smooth	191	ft	$78.00	$14,898.00		$0.00	$78.00	$14,898.00
2	77	026101370	18 Inch Irrigation/Storm Drain, Class B, smooth	11019	ft	$65.80	$725,050.20		$0.00	$65.80	$725,050.20
2	78	026101372	24 Inch Irrigation/Storm Drain, Class B, smooth	97	ft	$94.30	$9,147.10		$0.00	$94.30	$9,147.10
2	79	026101374	30 Inch Irrigation/Storm Drain, Class B, smooth	497	ft	$147.00	$73,059.00		$0.00	$147.00	$73,059.00
2	80	026101378	42 Inch Irrigation/Storm Drain, Class B, smooth	92	ft	$232.50	$21,390.00		$0.00	$232.50	$21,390.00
2	81	02610137P	18 inch Irrigation/Storm Drain, Class B, Smooth (Through Existing Pavement)	2894	ft	$64.10	$185,505.40		$0.00	$64.10	$185,505.40
2	82	026101464	15 Inch - Concrete Pipe, Irrigation/Storm Drain, Class B	324	ft	$133.50	$43,254.00		$0.00	$133.50	$43,254.00
2	83	02610146P	12 Inch Concrete Pipe, Irrigation/Storm Drain, Class B	92	ft	$52.50	$4,830.00		$0.00	$52.50	$4,830.00
2	84	026101470	30 Inch - Concrete Pipe, Irrigation/Storm Drain, Class B	110	ft	$191.00	$21,010.00		$0.00	$191.00	$21,010.00
2	85	026101472	36 Inch - Concrete Pipe, Irrigation/Storm Drain, Class B	47	ft	$237.00	$11,139.00		$0.00	$237.00	$11,139.00
2	86	026101476	48 Inch - Concrete Pipe, Irrigation/Storm Drain, Class B	402	ft	$248.50	$99,897.00		$0.00	$248.50	$99,897.00
2	87	026130020	Culvert End Section 12 inch	2	Each	$419.50	$839.00	$564.58	$1,129.16	$353.99	$707.98
2	88	026130030	Culvert End Section 18 inch	11	Each	$524.50	$5,769.50	$419.54	$4,614.94	$263.05	$2,893.57
2	89	026130040	Culvert End Section 24 inch	3	Each	$772.50	$2,317.50	$453.25	$1,359.75	$284.19	$852.56
2	90	02621001*	72" Steel Casing	20	ft	$1,590.00	$31,800.00		$0.00	$1,590.00	$31,800.00
2	91	02633001P	APWA Type C Cleanout Box	2	Each	$8,820.00	$17,640.00		$0.00	$8,820.00	$17,640.00
2	92	02633002P	APWA Type D Cleanout Box	1	Each	$10,400.00	$10,400.00		$0.00	$10,400.00	$10,400.00
2	93	02633003P	4' Manhole	4	Each	$3,650.00	$14,600.00		$0.00	$3,650.00	$14,600.00
2	94	02633004P	Qwest Access Culvert	1	Lump	$65,500.00	$65,500.00		$0.00	$65,500.00	$65,500.00
2	95	026350015	Diversion Box Solid Cover and Frame Type C	3	Each	$459.00	$1,377.00		$0.00	$459.00	$1,377.00
2	96	026350035	Rectangular Grate and Frame (Standard Grating)	61	Each	$600.00	$36,600.00	$835.64	$50,974.04	$523.95	$31,960.72
2	97	02635003P	Wide Grate and Frame	95	Each	$1,150.00	$109,250.00		$0.00	$1,150.00	$109,250.00
2	98	026350040	Rectangular Grate And Frame (Bicycle Safe Grating)	20	Each	$691.50	$13,830.00	$776.28	$15,525.60	$486.73	$9,734.55

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	99	026350045	Solid Cover and Frame - GF 5	8	Each	$676.00	$5,408.00	$735.77	$5,886.16	$461.33	$3,690.62
2	100	026350050	Manhole Steps - GF 6	772	Each	$5.22	$4,029.84	$40.99	$31,644.28	$25.70	$19,840.96
2	101	02642001*	Core and Grout Connection	21	Each	$326.00	$6,846.00		$0.00	$326.00	$6,846.00
2	102	027210010	Untreated Base Course	56633	Ton	$20.00	$1,132,660.00	$22.03	$1,247,624.99	$13.81	$782,260.87
2	103	027410050	HMA - 1/2 inch	17157	Ton	$81.80	$1,403,442.60	$71.25	$1,222,436.25	$44.67	$766,467.53
2	104	027410060	HMA - 3/4 inch	31464	Ton	$73.78	$2,321,413.92	$64.02	$2,014,325.28	$40.14	$1,262,981.95
2	105	02752001P	Portland Cement Concrete Pavement 9.5 inch Thick	49707	sq yd	$48.53	$2,412,280.71		$0.00	$48.53	$2,412,280.71
2	106	02752002P	Portland Cement Concrete Pavement 12 inch thick	157090	sq yd	$49.25	$7,736,682.50		$0.00	$49.25	$7,736,682.50
2	107	027530010	Full Depth Slab Replacement	555	sq yd	$347.00	$192,585.00	$168.69	$93,622.95	$105.77	$58,701.59
2	108	027650020	Pavement Message Paint	436	Each	$28.70	$12,513.20	$22.95	$10,006.20	$14.39	$6,273.89
2	109	027650030	Remove Pavement Markings	23058	ft	$0.34	$7,839.72	$0.67	$15,448.86	$0.42	$9,686.44
2	110	027650040	Remove Pavement Markings	38	Each	$65.50	$2,489.00	$59.95	$2,278.10	$37.59	$1,428.37
2	111	027650050	Pavement Marking Paint	357	gal	$28.10	$10,031.70	$25.06	$8,946.42	$15.71	$5,609.41
2	112	027710015	Concrete Curb Type B4	135	ft	$17.60	$2,376.00	$14.92	$2,014.20	$9.35	$1,262.90
2	113	027710017	Concrete Curb Type B5	4851	ft	$11.70	$56,756.70	$14.55	$70,582.05	$9.12	$44,254.95
2	114	027710020	Concrete Curb Type M2	1470	ft	$12.30	$18,081.00	$19.46	$28,606.20	$12.20	$17,936.09
2	115	027710025	Concrete Curb and Gutter Type B1	6884	ft	$17.70	$121,846.80	$17.58	$121,020.72	$11.02	$75,879.99
2	116	02771002P	6" Monolithic Curb	47	ft	$27.00	$1,269.00		$0.00	$27.00	$1,269.00
2	117	02771003P	Concrete Curb and Gutter Transition	228	ft	$31.00	$7,068.00		$0.00	$31.00	$7,068.00
2	118	027710040	Concrete Driveway Flared, 6 inch Thick	420	sq ft	$5.68	$2,385.60	$5.21	$2,188.20	$3.27	$1,372.00
2	119	02771004P	Concrete Driveway Flared, Modified, 6 inch Thick	2141	sq ft	$7.43	$15,907.63	$5.21	$11,154.61	$3.27	$6,993.94
2	120	027710059	Pedestrian Access Ramp	37	Each	$1,640.00	$60,680.00	$1,958.87	$72,478.19	$1,228.21	$45,443.83
2	121	02771005P	Concrete Driveway Flared, Modified, 7 inch Thick	2442	sq ft	$8.02	$19,584.84	$7.44	$18,168.48	$4.66	$11,391.64
2	122	027710086	Detectable Warning Surface	10	Each	$1,110.00	$11,100.00	$1,260.00	$12,600.00	$790.02	$7,900.20
2	123	027710100	Plowable End Section	14	Each	$760.50	$10,647.00	$938.56	$13,139.84	$588.48	$8,238.68
2	124	02771011P	Roll Gutter	14620	ft	$21.90	$320,178.00		$0.00	$21.90	$320,178.00
2	125	02771012P	48" Concrete Lined Ditch	561	ft	$32.90	$18,456.90		$0.00	$32.90	$18,456.90
2	126	02771013P	Concrete Retaining Curb	458	ft	$17.70	$8,106.60		$0.00	$17.70	$8,106.60
2	127	027760010	Concrete Sidewalk	44364	sq ft	$5.09	$225,812.76	$4.71	$208,954.44	$2.95	$131,014.43
2	128	027760020	Concrete Median Filler	11106	sq ft	$4.56	$50,643.36	$28.82	$320,074.92	$18.07	$200,686.97
2	129	027760030	Concrete Flatwork 4 inch thick	7661	sq ft	$5.68	$43,514.48	$6.43	$49,260.23	$4.03	$30,886.16
2	130	028210008	6 ft Chain Link Fence, Type I	10898	ft	$14.10	$153,661.80	$49.12	$535,309.76	$30.80	$335,639.22

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	131	028210044	Chain Link Brace Post	65	Each	$343.00	$22,295.00	$350.00	$22,750.00	$219.45	$14,264.25
2	132	028210084	Chain Link Gate, H= 6 ft X W= 12 ft	4	Each	$653.00	$2,612.00		$0.00	$653.00	$2,612.00
2	133	028210100	Chain Link Gate, H= 6 ft X W= 16 ft	1	Each	$1,020.00	$1,020.00		$0.00	$1,020.00	$1,020.00
2	134	02822001P	Temporary Right-of-Way Fence	14015	ft	$2.83	$39,662.45		$0.00	$2.83	$39,662.45
2	135	028430005	Crash Cushion Type A	4	Each	$22,600.00	$90,400.00	$18,720.42	$74,881.68	$11,737.70	$46,950.81
2	136	028430010	Crash Cushion Type B	3	Each	$16,000.00	$48,000.00	$15,343.53	$46,030.59	$9,620.39	$28,861.18
2	137	02844001P	42" Median Barrier	8950	ft	$110.00	$984,500.00		$0.00	$110.00	$984,500.00
2	138	02844002P	42" Roadside Barrier	23376	ft	$110.00	$2,571,360.00		$0.00	$110.00	$2,571,360.00
2	139	02844003P	42" Barrier End Section	7	Each	$6,100.00	$42,700.00		$0.00	$6,100.00	$42,700.00
2	140	02844004P	Double Barrier End Section Type I	3	Each	$9,970.00	$29,910.00		$0.00	$9,970.00	$29,910.00
2	141	02844005P	Double Barrier End Section Type II	1	Each	$11,700.00	$11,700.00		$0.00	$11,700.00	$11,700.00
2	142	02844006P	42" Roadside Retaining/Barrier	1026	ft	$292.50	$300,105.00		$0.00	$292.50	$300,105.00
2	143	02844007P	Barrier Transition to Sign Foundation	6	Each	$23,400.00	$140,400.00		$0.00	$23,400.00	$140,400.00
2	144	02844008P	Barrier Transition to Double Sign Foundation	1	Each	$35,100.00	$35,100.00		$0.00	$35,100.00	$35,100.00
2	145	02844009P	Barrier Transition to Parapet	14	Each	$4,100.00	$57,400.00		$0.00	$4,100.00	$57,400.00
2	146	02844010P	Cast-in-Place Barrier Wall	406	ft	$405.00	$164,430.00		$0.00	$405.00	$164,430.00
2	147	02844011P	Pilaster Post Type I	12	Each	$6,320.00	$75,840.00		$0.00	$6,320.00	$75,840.00
2	148	02844012P	Pilaster Post Type II	14	Each	$7,500.00	$105,000.00		$0.00	$7,500.00	$105,000.00
2	149	02844013P	54" Roadside Barrier	503	ft	$158.00	$79,474.00		$0.00	$158.00	$79,474.00
2	150	02844014P	54" Roadside Barrier to 42" Parapet Transition	1	Each	$4,450.00	$4,450.00		$0.00	$4,450.00	$4,450.00
2	151	02844015P	54" Offset Barrier	235	ft	$164.00	$38,540.00		$0.00	$164.00	$38,540.00
2	152	02844016P	54" Barrier End Section	1	Each	$6,400.00	$6,400.00		$0.00	$6,400.00	$6,400.00
2	153	028610050	Precast Noise Wall 12 ft	4387	ft	$279.50	$1,226,166.50	$185.00	$811,595.00	$116.00	$508,870.07
2	154	02861005P	Custom Precast Noise Wall 12 ft	144	ft	$479.50	$69,048.00	$185.00	$26,640.00	$116.00	$16,703.28
2	155	028610060	Precast Noise Wall 14 ft	911	ft	$300.50	$273,755.50	$205.00	$186,755.00	$128.54	$117,095.39
2	156	02861006P	Custom Precast Noise Wall 14 ft	72	ft	$500.50	$36,036.00	$205.00	$14,760.00	$128.54	$9,254.52
2	157	02861008P	Precast Wall 8 ft	840	ft	$244.50	$205,380.00	$143.00	$120,120.00	$89.66	$75,315.24
2	158	02861011P	Precast Retaining Wall 15 ft	432	ft	$393.50	$169,992.00		$0.00	$393.50	$169,992.00
2	159	028610135	Precast Retaining/Noise Wall 19 ft	2784	ft	$551.50	$1,535,376.00		$0.00	$551.50	$1,535,376.00
2	160	02861013P	Precast Retaining/Noise Wall 21 ft	3407	ft	$587.50	$2,001,612.50		$0.00	$587.50	$2,001,612.50
2	161	028910270	Remove Sign Less Than 20 Square Feet	93	Each	$45.70	$4,250.10	$87.29	$8,117.97	$54.73	$5,089.97
2	162	028910275	Remove Sign Greater Than or Equal to 20 Square Feet	5	Each	$163.00	$815.00	$836.08	$4,180.40	$524.22	$2,621.11

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	163	03211001P	Reinforcing Steel - Coated	60506	lb	$1.38	$83,498.28	$1.34	$81,078.04	$0.84	$50,835.93
2	164	033100020	Concrete- Small Structure	510	cu yd	$974.50	$496,995.00	$1,350.73	$688,872.30	$846.91	$431,922.93
2	165	05120001*	Decorative Metal	8930	sq ft	$10.50	$93,765.00		$0.00	$10.50	$93,765.00
2	166	09991002P	Staining Concrete Barrier	151355	sq ft	$1.08	$163,463.40		$0.00	$1.08	$163,463.40
2	167	09991003P	Staining Concrete Noisewall	411110	sq ft	$0.99	$406,998.90		$0.00	$0.99	$406,998.90
2	168	020560025	Granular Backfill Borrow (Plan Quantity)	7	cu yd	$42.70	$298.90	$55.35	$387.45	$34.70	$242.93
2	169	03211001P	Reinforcing Steel - Coated	8031	lb	$1.64	$13,170.84	$1.34	$10,761.54	$0.84	$6,747.49
2	170	03310001D	Structural Concrete(Est. Lump Qty: 20 cu yd)	20	cu yd	$1,230.00	$24,600.00	$1,666.67	$33,333.40	$1,045.00	$20,900.04
2	171	05120001D	Structural Steel(Est. Lump Qty: 1400 lb)	1400	lb	$2.34	$3,280.00	$2.73	$3,822.00	$1.71	$2,396.39
2	172	05125004*	Bridge Deck Replacement	1	Lump	$2,500,000.00	$2,500,000.00		$0.00	$2,500,000.00	$2,500,000.00
2	173	020560025	Granular Backfill Borrow (Plan Quantity)	430	cu yd	$75.20	$32,336.00	$55.35	$23,800.50	$34.70	$14,922.91
2	174	022210015	Remove Bridge	2	Each	$77,900.00	$155,800.00	$20,490.00	$40,980.00	$12,847.23	$25,694.46
2	175	024550010	Pile Driving Equipment	1	Lump	$28,900.00	$28,900.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	176	02455003D	Driven Piles 16 inch	6038	ft	$86.80	$524,098.40		$0.00	$86.80	$524,098.40
2	177	02831201*	Temporary Shoring	1	Lump	$58,500.00	$58,500.00		$0.00	$58,500.00	$58,500.00
2	178	03211001P	Reinforcing Steel - Coated (Owner Furnished)	420219	lb	$0.34	$142,874.46		$0.00	$0.34	$142,874.46
2	179	03310001D	Structural Concrete(Est. Lump Qty: 1893 cu yd)	1893	cu yd	$322.00	$609,546.00	$1,666.67	$3,155,006.31	$1,045.00	$1,978,188.96
2	180	03312001*	Structural Concrete - Lightweight	71	cu yd	$1,480.00	$105,080.00		$0.00	$1,480.00	$105,080.00
2	181	03372001P	Polymer Overlay	30437	sq ft	$6.02	$183,230.74		$0.00	$6.02	$183,230.74
2	182	03381001*	Form Liner	1041	sq ft	$14.90	$15,510.90		$0.00	$14.90	$15,510.90
2	183	058320010	Expansion Joint	344	ft	$219.00	$75,336.00	$162.80	$56,003.20	$102.08	$35,114.01
2	184	165260010	Electrical Work Bridges	1	Lump	$10,300.00	$10,300.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	185	020560025	Granular Backfill Borrow (Plan Quantity)	430	cu yd	$75.20	$32,336.00	$55.35	$23,800.50	$34.70	$14,922.91
2	186	022210015	Remove Bridge	2	Each	$79,600.00	$159,200.00	$20,490.00	$40,980.00	$12,847.23	$25,694.46
2	187	024550010	Pile Driving Equipment	1	Lump	$28,900.00	$28,900.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	188	02455003D	Driven Piles 16 inch	4864	ft	$89.20	$433,868.80		$0.00	$89.20	$433,868.80
2	189	02831201*	Temporary Shoring	1	Lump	$68,400.00	$68,400.00		$0.00	$68,400.00	$68,400.00
2	190	03211001P	Reinforcing Steel - Coated (Owner Furnished)	420219	lb	$0.34	$142,874.46		$0.00	$0.34	$142,874.46
2	191	03310001D	Structural Concrete(Est. Lump Qty: 1893 cu yd)	1893	cu yd	$322.00	$609,546.00	$1,666.67	$3,155,006.31	$1,045.00	$1,978,188.96
2	192	03312001*	Structural Concrete - Lightweight	71	cu yd	$1,480.00	$105,080.00		$0.00	$1,480.00	$105,080.00
2	193	03372001P	Polymer Overlay	30437	sq ft	$6.02	$183,230.74		$0.00	$6.02	$183,230.74
2	194	03381001*	Form Liner	1041	sq ft	$14.90	$15,510.90		$0.00	$14.90	$15,510.90

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	195	058320010	Expansion Joint	344	ft	$219.00	$75,336.00	$162.80	$56,003.20	$102.08	$35,114.01
2	196	165260010	Electrical Work Bridges	1	Lump	$10,800.00	$10,800.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	197	020560025	Granular Backfill Borrow (Plan Quantity)	360	cu yd	$77.20	$27,792.00	$55.35	$19,926.00	$34.70	$12,493.60
2	198	022210015	Remove Bridge	2	Each	$87,400.00	$174,800.00	$20,490.00	$40,980.00	$12,847.23	$25,694.46
2	199	024550010	Pile Driving Equipment	1	Lump	$28,900.00	$28,900.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	200	02455003D	Driven Piles 16 inch	5147	ft	$93.30	$480,215.10		$0.00	$93.30	$480,215.10
2	201	02831201*	Temporary Shoring	1	Lump	$67,700.00	$67,700.00		$0.00	$67,700.00	$67,700.00
2	202	03211001P	Reinforcing Steel - Coated (Owner Furnished)	438293	lb	$0.33	$144,636.69		$0.00	$0.33	$144,636.69
2	203	03310001D	Structural Concrete(Est. Lump Qty: 1895 cu yd)	1895	cu yd	$322.00	$610,190.00	$1,666.67	$3,158,339.65	$1,045.00	$1,980,278.96
2	204	03372001P	Polymer Overlay	34884	sq ft	$6.01	$209,652.84		$0.00	$6.01	$209,652.84
2	205	03381001*	Form Liner	1448	sq ft	$14.90	$21,575.20		$0.00	$14.90	$21,575.20
2	206	058320010	Expansion Joint	300	ft	$219.00	$65,700.00	$162.80	$48,840.00	$102.08	$30,622.68
2	207	165260010	Electrical Work Bridges	1	Lump	$15,800.00	$15,800.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	208	020560025	Granular Backfill Borrow (Plan Quantity)	450	cu yd	$74.50	$33,525.00	$55.35	$24,907.50	$34.70	$15,617.00
2	209	022210015	Remove Bridge	2	Each	$80,600.00	$161,200.00	$20,490.00	$40,980.00	$12,847.23	$25,694.46
2	210	024550010	Pile Driving Equipment	1	Lump	$28,900.00	$28,900.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	211	02455003D	Driven Piles 16 inch	5942	ft	$86.70	$515,171.40		$0.00	$86.70	$515,171.40
2	212	02831201*	Temporary Shoring	1	Lump	$63,200.00	$63,200.00		$0.00	$63,200.00	$63,200.00
2	213	03211001P	Reinforcing Steel - Coated (Owner Furnished)	466489	lb	$0.32	$149,276.48		$0.00	$0.32	$149,276.48
2	214	03310001D	Structural Concrete(Est. Lump Qty: 2007 cu yd)	2007	cu yd	$322.00	$646,254.00	$1,666.67	$3,345,006.69	$1,045.00	$2,097,319.19
2	215	03312001*	Structural Concrete - Lightweight	75	cu yd	$1,470.00	$110,250.00		$0.00	$1,470.00	$110,250.00
2	216	03372001P	Polymer Overlay	33200	sq ft	$6.00	$199,200.00		$0.00	$6.00	$199,200.00
2	217	03381001*	Form Liner	1095	sq ft	$14.90	$16,315.50		$0.00	$14.90	$16,315.50
2	218	058320010	Expansion Joint	360	ft	$219.00	$78,840.00	$162.80	$58,608.00	$102.08	$36,747.22
2	219	165260010	Electrical Work Bridges	1	Lump	$13,600.00	$13,600.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	220	020560025	Granular Backfill Borrow (Plan Quantity)	279	cu yd	$86.10	$24,021.90	$55.35	$15,442.65	$34.70	$9,682.54
2	221	022210015	Remove Bridge	2	Each	$92,000.00	$184,000.00	$20,490.00	$40,980.00	$12,847.23	$25,694.46
2	222	024550010	Pile Driving Equipment	1	Lump	$28,900.00	$28,900.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	223	02455003D	Driven Piles 16 inch	4486	ft	$88.80	$398,356.80		$0.00	$88.80	$398,356.80
2	224	02831201*	Temporary Shoring	1	Lump	$124,000.00	$124,000.00		$0.00	$124,000.00	$124,000.00
2	225	03211001P	Reinforcing Steel - Coated (Owner Furnished)	299605	lb	$0.39	$116,845.95		$0.00	$0.39	$116,845.95
2	226	03310001D	Structural Concrete(Est. Lump Qty: 1419 cu yd)	1419	cu yd	$322.00	$456,918.00	$1,666.67	$2,365,004.73	$1,045.00	$1,482,857.97

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	227	03372001P	Polymer Overlay	22137	sq ft	$6.08	$134,592.96		$0.00	$6.08	$134,592.96
2	228	058320010	Expansion Joint	298	ft	$219.00	$65,262.00	$162.80	$48,514.40	$102.08	$30,418.53
2	229	165260010	Electrical Work Bridges	1	Lump	$10,200.00	$10,200.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	230	020560025	Granular Backfill Borrow (Plan Quantity)	97	cu yd	$78.70	$7,633.90	$55.35	$5,368.95	$34.70	$3,366.33
2	231	024550010	Pile Driving Equipment	1	Lump	$14,400.00	$14,400.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	232	02455003D	Driven Piles 16 inch	1353	ft	$88.80	$120,146.40		$0.00	$88.80	$120,146.40
2	233	02831201*	Temporary Shoring	1	Lump	$0.01	$0.01		$0.00	$0.01	$0.01
2	234	03211001P	Reinforcing Steel - Coated (Owner Furnished)	101740	lb	$0.37	$37,643.80		$0.00	$0.37	$37,643.80
2	235	03310001D	Structural Concrete(Est. Lump Qty: 435 cu yd)	435	cu yd	$404.60	$176,000.00	$1,666.67	$725,001.45	$1,045.00	$454,575.91
2	236	03312001*	Structural Concrete - Lightweight	31	cu yd	$1,470.00	$45,570.00		$0.00	$1,470.00	$45,570.00
2	237	03372001P	Polymer Overlay	6162	sq ft	$6.30	$38,820.60		$0.00	$6.30	$38,820.60
2	238	03381001*	Form Liner	1647	sq ft	$14.90	$24,540.30		$0.00	$14.90	$24,540.30
2	239	058320010	Expansion Joint	85	ft	$219.00	$18,615.00	$162.80	$13,838.00	$102.08	$8,676.43
2	240	165260010	Electrical Work Bridges	1	Lump	$3,030.00	$3,030.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	241	020560025	Granular Backfill Borrow (Plan Quantity)	115	cu yd	$73.00	$8,395.00	$55.35	$6,365.25	$34.70	$3,991.01
2	242	024550010	Pile Driving Equipment	1	Lump	$14,400.00	$14,400.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	243	02455003D	Driven Piles 16 inch	1688	ft	$88.30	$149,050.40		$0.00	$88.30	$149,050.40
2	244	02831201*	Temporary Shoring	1	Lump	$0.01	$0.01		$0.00	$0.01	$0.01
2	245	03211001P	Reinforcing Steel - Coated (Owner Furnished)	105000	lb	$0.37	$38,850.00		$0.00	$0.37	$38,850.00
2	246	03310001D	Structural Concrete(Est. Lump Qty: 470 cu yd)	470	cu yd	$322.00	$151,340.00	$1,666.67	$783,334.90	$1,045.00	$491,150.98
2	247	03312001*	Structural Concrete - Lightweight	35	cu yd	$1,300.00	$45,500.00		$0.00	$1,300.00	$45,500.00
2	248	03372001P	Polymer Overlay	6190	sq ft	$6.29	$38,935.10		$0.00	$6.29	$38,935.10
2	249	03381001*	Form Liner	1640	sq ft	$14.90	$24,436.00		$0.00	$14.90	$24,436.00
2	250	058320010	Expansion Joint	85	ft	$219.00	$18,615.00	$162.80	$13,838.00	$102.08	$8,676.43
2	251	165260010	Electrical Work Bridges	1	Lump	$2,710.00	$2,710.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	252	020560025	Granular Backfill Borrow (Plan Quantity)	460	cu yd	$72.70	$33,442.00	$55.35	$25,461.00	$34.70	$15,964.05
2	253	022210015	Remove Bridge	2	Each	$146,000.00	$292,000.00	$20,490.00	$40,980.00	$12,847.23	$25,694.46
2	254	024550010	Pile Driving Equipment	1	Lump	$28,900.00	$28,900.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	255	02455003D	Driven Piles 16 inch	4580	ft	$89.80	$411,284.00		$0.00	$89.80	$411,284.00
2	256	02831201*	Temporary Shoring	1	Lump	$222,000.00	$222,000.00		$0.00	$222,000.00	$222,000.00
2	257	03211001P	Reinforcing Steel - Coated (Owner Furnished)	392565	lb	$0.35	$137,397.75		$0.00	$0.35	$137,397.75
2	258	03310001D	Structural Concrete(Est. Lump Qty: 2040 cu yd)	2040	cu yd	$322.00	$656,880.00	$1,666.67	$3,400,006.80	$1,045.00	$2,131,804.26

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2	259	03372001P	Polymer Overlay	32786	sq ft	$6.01	$197,043.86		$0.00	$6.01	$197,043.86
2	260	03381001*	Form Liner	610	sq ft	$14.90	$9,089.00		$0.00	$14.90	$9,089.00
2	261	058320010	Expansion Joint	350	ft	$219.00	$76,650.00	$162.80	$56,980.00	$102.08	$35,726.46
2	262	165260010	Electrical Work Bridges	1	Lump	$15,000.00	$15,000.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	263	020560025	Granular Backfill Borrow (Plan Quantity)	120	cu yd	$73.80	$8,856.00	$55.35	$6,642.00	$34.70	$4,164.53
2	264	024550010	Pile Driving Equipment	1	Lump	$21,600.00	$21,600.00	$59,725.00	$59,725.00	$37,447.58	$37,447.58
2	265	02455003D	Driven Piles 16 inch	2400	ft	$92.30	$221,520.00		$0.00	$92.30	$221,520.00
2	266	02831201*	Temporary Shoring	1	Lump	$0.01	$0.01		$0.00	$0.01	$0.01
2	267	03211001P	Reinforcing Steel - Coated (Owner Furnished)	230000	lb	$0.34	$78,200.00		$0.00	$0.34	$78,200.00
2	268	03310001D	Structural Concrete(Est. Lump Qty: 945 cu yd)	945	cu yd	$322.00	$304,290.00	$1,666.67	$1,575,003.15	$1,045.00	$987,526.98
2	269	03372001P	Polymer Overlay	14000	sq ft	$6.08	$85,120.00		$0.00	$6.08	$85,120.00
2	270	03381001*	Form Liner	1050	sq ft	$14.90	$15,645.00		$0.00	$14.90	$15,645.00
2	271	058320010	Expansion Joint	100	ft	$219.00	$21,900.00	$162.80	$16,280.00	$102.08	$10,207.56
2	272	165260010	Electrical Work Bridges	1	Lump	$4,240.00	$4,240.00	$13,245.38	$13,245.38	$8,304.85	$8,304.85
2	273	02894001*	Sign Foundation	4	Each	$22,400.00	$89,600.00		$0.00	$22,400.00	$89,600.00
2	274	02894002*	G-366-A	1	Each	$93,500.00	$93,500.00		$0.00	$93,500.00	$93,500.00
2	275	02894003*	G-366-B	1	Each	$93,500.00	$93,500.00		$0.00	$93,500.00	$93,500.00
2	276	02894001*	Sign Foundation	4	Each	$46,700.00	$186,800.00		$0.00	$46,700.00	$186,800.00
2	277	02894002*	G-367-A	1	Each	$45,100.00	$45,100.00		$0.00	$45,100.00	$45,100.00
2	278	02894003*	G-367-B	1	Each	$45,100.00	$45,100.00		$0.00	$45,100.00	$45,100.00
2	279	02894001*	Sign Foundation	6	Each	$46,700.00	$280,200.00		$0.00	$46,700.00	$280,200.00
2	280	02894002*	G-368-A	1	Each	$83,000.00	$83,000.00		$0.00	$83,000.00	$83,000.00
2	281	02894003*	G-368-B	1	Each	$83,000.00	$83,000.00		$0.00	$83,000.00	$83,000.00
2	282	02894004*	G-368-C	1	Each	$83,000.00	$83,000.00		$0.00	$83,000.00	$83,000.00
2	283	02894001*	Sign Foundation	6	Each	$46,700.00	$280,200.00		$0.00	$46,700.00	$280,200.00
2	284	02894002*	G-369-A	1	Each	$194,000.00	$194,000.00		$0.00	$194,000.00	$194,000.00
2	285	02894003*	G-369-B	1	Each	$194,000.00	$194,000.00		$0.00	$194,000.00	$194,000.00
2	286	02894004*	G-369-C	1	Each	$194,000.00	$194,000.00		$0.00	$194,000.00	$194,000.00
2	287	02831001*	MSE Wall (R-519B)(Est. Lump Qty: 14927 sq ft)	14927	sq ft	$30.40	$453,800.00		$0.00	$30.40	$453,800.00
2	288	02831002*	MSE Wall (R-519D)(Est. Lump Qty: 420 sq ft)	420	sq ft	$33.10	$13,900.00		$0.00	$33.10	$13,900.00
2	289	02831003*	MSE Wall (R-519F)(Est. Lump Qty: 449 sq ft)	449	sq ft	$32.96	$14,800.00		$0.00	$32.96	$14,800.00
2	290	02831004*	MSE Wall (R-519H)(Est. Lump Qty: 475 sq ft)	475	sq ft	$32.21	$15,300.00		$0.00	$32.21	$15,300.00

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2	291	02831005*	MSE Wall (R-519K)(Est. Lump Qty: 17904 sq ft)	17904	sq ft	$29.59	$529,700.00		$0.00	$29.59	$529,700.00
2	292	02831006*	MSE Wall (R-519L)(Est. Lump Qty: 16420 sq ft)	16420	sq ft	$29.47	$483,900.00		$0.00	$29.47	$483,900.00
2	293	02831007*	MSE Wall (R-519N)(Est. Lump Qty: 5054 sq ft)	5054	sq ft	$29.58	$149,500.00		$0.00	$29.58	$149,500.00
2	294	02831008*	MSE Wall (R-519O)(Est. Lump Qty: 5061 sq ft)	5061	sq ft	$29.56	$149,600.00		$0.00	$29.56	$149,600.00
2	295	02831009*	MSE Wall (R-519Q)(Est. Lump Qty: 12447 sq ft)	12447	sq ft	$30.35	$377,800.00		$0.00	$30.35	$377,800.00
2	296	02831010*	MSE Wall (R-519S)(Est. Lump Qty: 533 sq ft)	533	sq ft	$32.65	$17,400.00		$0.00	$32.65	$17,400.00
2	297	02831011*	MSE Wall (R-519U)(Est. Lump Qty: 532 sq ft)	532	sq ft	$32.14	$17,100.00		$0.00	$32.14	$17,100.00
2	298	02831012*	MSE Wall (R-519A)(Est. Lump Qty: 12937 sq ft)	12937	sq ft	$32.23	$416,900.00		$0.00	$32.23	$416,900.00
2	299	02831013*	MSE Wall (R-519C)(Est. Lump Qty: 451 sq ft)	451	sq ft	$32.82	$14,800.00		$0.00	$32.82	$14,800.00
2	300	02831014*	MSE Wall (R-519E)(Est. Lump Qty: 443 sq ft)	443	sq ft	$32.51	$14,400.00		$0.00	$32.51	$14,400.00
2	301	02831015*	MSE Wall (R-519G)(Est. Lump Qty: 478 sq ft)	478	sq ft	$32.22	$15,400.00		$0.00	$32.22	$15,400.00
2	302	02831016*	MSE Wall (R-519P)(Est. Lump Qty: 8450 sq ft)	8450	sq ft	$31.36	$265,000.00		$0.00	$31.36	$265,000.00
2	303	02831017*	MSE Wall (R-519R)(Est. Lump Qty: 559 sq ft)	559	sq ft	$32.38	$18,100.00		$0.00	$32.38	$18,100.00
2	304	02831018*	MSE Wall (R-519T)(Est. Lump Qty: 486 sq ft)	486	sq ft	$32.72	$15,900.00		$0.00	$32.72	$15,900.00
2	305	02831019*	MSE Wall (R-519W)(Est. Lump Qty: 17963 sq ft)	17963	sq ft	$27.71	$497,700.00		$0.00	$27.71	$497,700.00
2	306	02831020*	MSE Wall (R-519X)(Est. Lump Qty: 2940 sq ft)	2940	sq ft	$28.50	$83,800.00		$0.00	$28.50	$83,800.00
2	307	02831021*	MSE Wall (R-519Y)(Est. Lump Qty: 4300 sq ft)	4300	sq ft	$32.79	$141,000.00		$0.00	$32.79	$141,000.00
2	308	02831022*	Select Backfill	175934	Ton	$17.60	$3,096,438.40		$0.00	$17.60	$3,096,438.40
2	309	02831022*	Modular Block Retaining Wall (R-520A)(Est. Lump Qty: 1540 sq ft)	1540	sq ft	$38.90	$59,900.00		$0.00	$38.90	$59,900.00
2	310	02831023*	Modular Block Retaining Wall (R-520B)(Est. Lump Qty: 1487 sq ft)	1487	sq ft	$38.87	$57,800.00		$0.00	$38.87	$57,800.00
2	311	02831024*	Modular Block Retaining Wall (R-520C)(Est. Lump Qty: 2764 sq ft)	2764	sq ft	$38.89	$107,500.00		$0.00	$38.89	$107,500.00
2	312	02831025*	Modular Block Retaining Wall (R-520D)(Est. Lump Qty: 1488 sq ft)	1488	sq ft	$38.91	$57,900.00		$0.00	$38.91	$57,900.00
2	313	02831026*	Modular Block Retaining Wall (R-520E)(Est. Lump Qty: 2428 sq ft)	2428	sq ft	$38.88	$94,400.00		$0.00	$38.88	$94,400.00
2	314	02831027*	Modular Block Retaining Wall (R-520F)(Est. Lump Qty: 1515 sq ft)	1515	sq ft	$38.88	$58,900.00		$0.00	$38.88	$58,900.00
2	315	02831028*	Modular Block Retaining Wall (R-520G)(Est. Lump Qty: 2650 sq ft)	2650	sq ft	$38.87	$103,000.00		$0.00	$38.87	$103,000.00
2	316	02831029*	Modular Block Retaining Wall (R-520H)(Est. Lump Qty: 1620 sq ft)	1620	sq ft	$38.89	$63,000.00		$0.00	$38.89	$63,000.00
2	317	02831030*	Modular Block Retaining Wall (R-520J)(Est. Lump Qty: 1000 sq ft)	1000	sq ft	$38.90	$38,900.00		$0.00	$38.90	$38,900.00
2	318	02831012*	Cast-In-Place Retaining Wall (R-521A)(Est. Lump Qty: 1508 sq ft)	1508	sq ft	$100.80	$152,000.00		$0.00	$100.80	$152,000.00
2	319	020560025	Granular Backfill Borrow (Plan Quantity)	4	cu yd	$42.70	$170.80	$55.35	$221.40	$34.70	$138.82
2	320	03211001P	Reinforcing Steel - Coated	4246	lb	$1.64	$6,963.44	$1.34	$5,689.64	$0.84	$3,567.40
2	321	03310001D	Structural Concrete(Est. Lump Qty: 10 cu yd)	10	cu yd	$2,460.00	$24,600.00	$1,666.67	$16,666.70	$1,045.00	$10,450.02
2	322	05120001D	Structural Steel(Est. Lump Qty: 900 lb)	900	lb	$2.44	$2,200.00	$2.73	$2,457.00	$1.71	$1,540.54

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
2	323	020750040	Geotextiles - Weed Barrier	63500	sq yd	$2.00	$127,000.00	$3.25	$206,375.00	$2.04	$129,397.13
2	324	02771001P	Concrete Mow Strip	16500	ft	$23.90	$394,350.00		$0.00	$23.90	$394,350.00
2	325	02812001P	4" Smooth Lined Polyethylene (HDPE)	754	ft	$29.30	$22,092.20		$0.00	$29.30	$22,092.20
2	326	029110010	Wood Fiber Mulch	10	Acre	$1,520.00	$15,200.00	$1,121.20	$11,212.00	$702.99	$7,029.92
2	327	02912005P	Spread 4 inch Topsoil	48400	sq yd	$2.11	$102,124.00	$0.80	$38,720.00	$0.50	$24,277.44
2	328	02913001*	Rock Mulch	5800	sq yd	$7.02	$40,716.00		$0.00	$7.02	$40,716.00
2	329	02913002*	Cobble	49510	sq yd	$7.66	$379,246.60		$0.00	$7.66	$379,246.60
2	330	02913003*	River Rock	13500	sq yd	$7.02	$94,770.00		$0.00	$7.02	$94,770.00
2	331	02913004*	3' Boulders	350	Each	$164.00	$57,400.00		$0.00	$164.00	$57,400.00
2	332	029220030	Broadcast Seed	10	Acre	$1,050.00	$10,500.00	$1,121.41	$11,214.10	$703.12	$7,031.24
2	333	029220060	Turf Sod	3000	sq ft	$0.76	$2,280.00	$0.54	$1,620.00	$0.34	$1,015.74
2	334	028420010	Delineator Type I	160	Each	$31.60	$5,056.00	$25.69	$4,110.40	$16.11	$2,577.22
2	335	028910130	Sign Type PW-I	386	sq ft	$76.10	$29,374.60	$81.41	$31,424.26	$51.04	$19,703.01
2	336	028910132	Sign Type PW-1	122	Each	$76.10	$9,284.20	$67.07	$8,182.54	$42.05	$5,130.45
2	337	028910135	Sign Type PW-1, 12 inch X 18 inch	1	Each	$585.00	$585.00	$750.00	$750.00	$470.25	$470.25
2	338	028910137	Sign Type PW-1, 12 inch x 36 Inch	10	Each	$585.00	$5,850.00	$315.00	$3,150.00	$197.51	$1,975.05
2	339	028910145	Sign Type PW-1, 24 inch	1	Each	$877.50	$877.50		$0.00	$877.50	$877.50
2	340	028910160	Sign Type PW-1, 24 inch X 30 inch	2	Each	$585.00	$1,170.00	$185.00	$370.00	$116.00	$231.99
2	341	02891016P	Sign Type PW-1, 36 inch X 30 inch	7	Each	$702.00	$4,914.00		$0.00	$702.00	$4,914.00
2	342	028910170	Sign Type PW-1, 30 inch X 30 inch	4	Each	$585.00	$2,340.00		$0.00	$585.00	$2,340.00
2	343	028910175	Sign Type PW-1, 36 inch X 36 inch	8	Each	$702.00	$5,616.00	$871.43	$6,971.44	$546.39	$4,371.09
2	344	02891017P	Sign Type PW-1, 36 inch X 48 inch	5	Each	$819.00	$4,095.00		$0.00	$819.00	$4,095.00
2	345	028910180	Sign Type PW-1, 48 inch X 48 inch	10	Each	$877.50	$8,775.00	$805.17	$8,051.70	$504.84	$5,048.42
2	346	028910185	Sign Type PW-2	9897	sq ft	$76.10	$753,161.70	$73.48	$727,231.56	$46.07	$455,974.19
2	347	02891018P	Sign Type P-2	599	sq ft	$70.20	$42,049.80	$73.48	$44,014.52	$46.07	$27,597.10
2	348	028910195	Sign Type PW-2, 21 inch X 15 inch	6	Each	$526.50	$3,159.00		$0.00	$526.50	$3,159.00
2	349	028910200	Sign Type PW-2, 24 inch X 12 inch	12	Each	$585.00	$7,020.00	$275.00	$3,300.00	$172.43	$2,069.10
2	350	02891021P	Sign Type PW-2, 30 inch X 15 inch	6	Each	$585.00	$3,510.00		$0.00	$585.00	$3,510.00
2	351	02891022P	Sign Type PW-2, 36 inch X 24 inch	4	Each	$585.00	$2,340.00		$0.00	$585.00	$2,340.00
2	352	028910230	Sign Type PW-2, 36 inch X 36 inch	5	Each	$760.50	$3,802.50		$0.00	$760.50	$3,802.50
2	353	028910235	Sign Type PW-2, 48 inch X 48 inch	8	Each	$877.50	$7,020.00		$0.00	$877.50	$7,020.00
2	354	16525001D	Highway Lighting System I-80 Corridor	1	Lump	$536,000.00	$536,000.00		$0.00	$536,000.00	$536,000.00

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2	355	13553001*	2D Conduit (2D)	10209	ft	$27.30	$278,705.70		$0.00	$27.30	$278,705.70
2	356	13553002*	4D Conduit (4D)	220	ft	$63.90	$14,058.00		$0.00	$63.90	$14,058.00
2	357	13553003*	1D Conduit (1D)	180	ft	$31.00	$5,580.00		$0.00	$31.00	$5,580.00
2	358	13553004*	2" Conduit (LV2)	7468	ft	$9.82	$73,335.76		$0.00	$9.82	$73,335.76
2	359	13553005*	2" Conduit (HV2)	4500	ft	$9.77	$43,965.00		$0.00	$9.77	$43,965.00
2	360	13553006*	3" Conduit (TAL3)	1708	ft	$11.80	$20,154.40		$0.00	$11.80	$20,154.40
2	361	13553007*	3" Conduit (HV3)	502	ft	$11.80	$5,923.60		$0.00	$11.80	$5,923.60
2	362	135540020	Polymer Concrete Junction Box, Type I	44	Each	$1,560.00	$68,640.00	$880.26	$38,731.44	$551.92	$24,284.61
2	363	135540030	Polymer Concrete Junction Box, Type II	38	Each	$1,910.00	$72,580.00	$887.79	$33,736.02	$556.64	$21,152.48
2	364	135540040	Polymer Concrete Junction Box, Type III	18	Each	$2,070.00	$37,260.00	$1,133.51	$20,403.18	$710.71	$12,792.79
2	365	13555001*	Remove and Reinstall ATMS Cabinet to New Location	5	Each	$4,230.00	$21,150.00		$0.00	$4,230.00	$21,150.00
2	366	13555002*	ATMS Cabinet and Foundation	1	Each	$2,940.00	$2,940.00		$0.00	$2,940.00	$2,940.00
2	367	13555003*	Salvaged ATMS Cabinet on New Foundation	4	Each	$2,940.00	$11,760.00		$0.00	$2,940.00	$11,760.00
2	368	13556001*	Remove and Salvage CCTV Camera and CCTV Pole	5	Each	$2,370.00	$11,850.00		$0.00	$2,370.00	$11,850.00
2	369	13556002*	45' CCTV Pole with Camera Lowering System	6	Each	$4,320.00	$25,920.00		$0.00	$4,320.00	$25,920.00
2	370	13556003*	Reinstall Salvaged CCTV Pole to New Location	1	Each	$3,880.00	$3,880.00		$0.00	$3,880.00	$3,880.00
2	371	13557001*	VMS System Type 1	2	Each	$3,710.00	$7,420.00		$0.00	$3,710.00	$7,420.00
2	372	13559001*	NID Sensor	6	Each	$1,590.00	$9,540.00		$0.00	$1,590.00	$9,540.00
2	373	13559002*	Pole Mounted NEMA 3R NID Enclosure	5	Each	$537.00	$2,685.00		$0.00	$537.00	$2,685.00
2	374	13561001*	ATMS Power Service	1	Lump	$49,900.00	$49,900.00		$0.00	$49,900.00	$49,900.00
2	375	135910010	Traffic Monitoring Detector Loop	36	Each	$1,350.00	$48,600.00		$0.00	$1,350.00	$48,600.00
2	376	13594001*	144 SMF	12604	ft	$7.86	$99,067.44		$0.00	$7.86	$99,067.44
2	377	13594002*	12 SMF	400	ft	$6.55	$2,620.00		$0.00	$6.55	$2,620.00
2	378	13594003*	6 SMF	3478	ft	$3.05	$10,607.90		$0.00	$3.05	$10,607.90
2	379	13594004*	Type A Splice Enclosure	2	Each	$801.00	$1,602.00		$0.00	$801.00	$1,602.00
2	380	13594005*	Type B Splice Enclosure	6	Each	$586.00	$3,516.00		$0.00	$586.00	$3,516.00
2	381	13594006*	Heavy Duty 6 Strand Fan-out Kit with 6-ST Connectors	14	Each	$118.00	$1,652.00		$0.00	$118.00	$1,652.00
2	382	13594007*	Fusion Splices	222	Each	$44.50	$9,879.00		$0.00	$44.50	$9,879.00
2	383	05125001*	ABC Bridge Temporary Abutments Phase II	1	Lump	$1,493,000.00	$1,493,000.00		$0.00	$1,493,000.00	$1,493,000.00
2	384	05125002*	ABC Bridge Move and Place Superstructure (Mammoet)Phase II	1	Lump	$3,179,000.00	$3,179,000.00		$0.00	$3,179,000.00	$3,179,000.00
2	385	05125003*	ABC Bridge Move and Place Superstructure (RLW) Phase II	1	Lump	$2,029,000.00	$2,029,000.00		$0.00	$2,029,000.00	$2,029,000.00
3	1	02431001*	Slip Line 8 inch Sewer	1416	ft	$46.84	$66,325.44		$0.00	$46.84	$66,325.44

	I-80; Bridge Reconstruct- All Phases					RALPH L WADSWORTH CONSTR CO INC BID		State Average Unit Prices 02-7-2007 through 02-6-2008		Golden Standard	
3	2	02615001*	Slip Line Culvert 24 inch	2707	ft	$134.87	$365,093.09		$0.00	$134.87	$365,093.09
3	3	02615002*	Slip Line Culvert 30 inch	829	ft	$179.10	$148,473.90		$0.00	$179.10	$148,473.90
3	4	02615003*	Slip Line Culvert 36 inch	1491	ft	$209.70	$312,662.70		$0.00	$209.70	$312,662.70
3	5	02615004*	Slip Line Culvert 42 inch	2090	ft	$243.17	$508,225.30		$0.00	$243.17	$508,225.30
3	6	02615005*	Slip Line Culvert 15 inch	450	ft	$77.48	$34,866.00		$0.00	$77.48	$34,866.00
3	7	32110010	Reinforcing Steel - Coated (Plan Quantity)	2989116	lb	$0.85	$2,540,748.60	$0.94	$2,809,769.04	$0.59	$1,761,725.19
				count			419	171			
				sum			$102,857,397.17				$98,857,151.59
				sum that matched			$30,426,931.78		$42,147,824.88		
				Silver standard Ratio			0.72	= 30,426,931.78 / 42,147,824.88			
				Gold Standard Ratio			1.04	=102,857,397.17 / 98,857,151.59			
				Percent items matched			40.8%				
				Percent of Price that matched			29.6%				